## REMARKS

1. The Office Action has rejected Claims 1 - 3 under the provisions of 35 U.S.C. §112, second paragraph, as being incomplete for omitting essential elements, such as a positive structure connected to the turbine mixer to permit the introduction of cement and water into the chamber. This rejection is respectfully traversed.

In response, Applicants would direct the Examiner's attention to the amendments to Claim 1 to provide additional structure defining a turbine mixer to pre-mix the cement and water into a cement paste before introduction into the mixing auger of the mobile concrete production apparatus. Applicant respectfully submits that these amendments overcome the rejection under Section 112 and respectfully requests that this rejection be reconsidered and withdrawn.

2. The Office Action has rejected Claims 33 – 37 and 46 under the provisions of 35 U.S.C. §102(b) as being anticipated by U. S. Patent No. 3,502,305 (Grun). The Office Action states that Grun discloses a mixing chamber into which is fed dry material, a mixing plate dividing the chamber into an inner and outer chamber with an annular gap with fins 8 breaking up liquid from nozzles 11, 12 to provide a slurry mixture, the fins being mounted up to the edge of the outer periphery of the disc surface. This rejection is respectfully traversed.

Applicant would direct the Examiner's attention to the amendments to independent Claims 33 and 46 in which the mixing chamber has been defined as having an axial or central inlet opening through which the dry cement and water are fed into the inner chamber of the mixing chamber. Furthermore, both independent Claims 33 and 46 have been amended to specify that the agitating fins are operable within the inner chamber to create the cement slurry

that is discharged to the outer chamber for further mixing and discharge from the mixing chamber. Applicant respectfully submits that the Grun reference cannot meet or make obvious these structural limitations.

Grun is a mixing device that operates differently than the turbine mixer of the instant invention. The Grun apparatus receives a granular material through a central or axial opening via a conveying device where a conical distribution chute directs the granular material outward toward the periphery of the distributor disc. Liquid is added to the granular material via inlet ports aligned with the circumferential portion of the distributor disc so that the granular material has the liquid added to it before falling off the edge of the distributor disc into engagement with a set of vertical vanes affixed to the underside of the disc to affect some mixing of the granular material and liquid before being discharged out the central outlet opening at the bottom of the housing. This Grun apparatus would not be effective to hydrate dry cement and create a cement paste or slurry.

With respect to amended independent Claims 33 and 46, as well as the claims respectively dependent therefrom, the Grun mixing apparatus does not feed the dry material and the water through the central inlet opening and Grun has no agitator fins on top of the distributor disc that are operable to mix the dry material and liquid to create a paste or slurry before being discharged from the inner chamber past the distributor disc. Accordingly, Grun cannot anticipate and cannot make obvious Applicant's turbine mixer defined by amended independent Claims 33 and 46.

In view of the amendments made to Claims 33 and 46, Applicant respectfully requests that this rejection be reconsidered and withdrawn.

3. The Office Action has rejected Claims 1 – 7 and 40 – 42 under the provisions of 35 U. S. C. §103(a) as being unpatentable over Grun in view of U. S. Patent No. 4,406,548 (Haws). The Office Action states that Grun discloses a turbine mixer as defined within the claims and that Haws adds the mobile frame that carries a mobile concrete production system. The Office Action concludes that it would be obvious to provide the mixer of Haws with a device of Grun so that the slurry produced by the Grun device may be more easily transported to the jobsite. This rejection is respectfully traversed.

Applicant would have the Examiner note that the turbine mixer incorporating the principles of the instant invention is intended to premix two of the components, namely dry cement and water, which are used to make concrete, the product produced by the mobile machine depicted in the Haws reference. Applicant's turbine mixer atomizes the dry cement and water into very fine particles that start the hydration process immediately in the turbine mixer. Conventional mobile concrete production machines, like the Haws machine, which are often referred to as a volumetric concrete mixer, typically convey requisite quantities of cement, water, aggregates, and sometimes other additives into a mixing auger where the materials are combined to create a desired quantity of a concrete mix.

With Applicant's turbine mixer, the dry cement and water are premixed in such a way as to begin the hydration of the cement well before the cement paste or slurry is introduced into the mixing auger to be combined with the aggregates to create concrete. Tests have shown a greatly reduced cure time for concrete mixes formed with the addition of a cement slurry created by Applicant's turbine mixer. It should be noted that while the preferred use of Applicant's turbine mixer is in conjunction with the mobile volumetric concrete mixer, although other concrete mixing systems can also utilize this technology.

Accordingly, Applicant intends for the turbine mixer to be carried on a mobile volumetric concrete mixer, such as is represented by Haws, but not to replace the mixing auger where the concrete mix is created. Applicant's turbine mixer is an improvement to this type of mobile concrete mixer in which the dry cement and water are premixed before being added to the mixing auger.

As is noted in the preceding section, Applicant admits that the Grun reference is a mixing apparatus, but Grun would not be capable of mixing dry cement and water as defined in amended independent Claims 1 and 40. More specifically, Claim 1 defines the turbine mixer as introducing the supply of dry cement and water through the central opening in the back plate of the mixing chamber. This simultaneous introduction of the two components to be mixed starts the hydration process immediately upon introduction into the inner chamber of the mixing chamber. The agitating fins within the mixing chamber mix these two components for discharge through a discharge opening in the front cover plate.

Amended independent Claim 40 defines the turbine mixer as having the mixing plate divide the mixing chamber into first and second chambers with the dry cement and water being received within the first chamber where agitating fins mix these two components to make a cement slurry that is conveyed into the second chamber for discharge from the mixing chamber.

Grun does not teach the introduction of both the dry particulate material and the liquid through the central inlet opening or the use of agitating fins within the first chamber to create a slurry to be conveyed into the second chamber for discharge therefrom through a discharge opening. The Haws reference, while providing the basic disclosure for a mobile volumetric concrete production machine, adds nothing to the Grun reference to meet the limitations of the amended independent claims relating to the turbine mixer that creates a premixed cement slurry for use in the subsequent production of concrete.

Furthermore, Applicant respectfully submits that the state of the known art in the production of concrete contains no teaching or suggestion for the high speed pre-mixing of dry cement and water to create a cement slurry that accelerates the hydration process before the cement slurry is added to aggregates in a conventional mixing apparatus to create a concrete mix. The turbine mixer creates a premixed atomized slurry that affects a hydration of the individual cement particles in a manner that has heretofore been unknown in the art. This intense hydration of the cement particles causes a rapid cure of the concrete mix that is created after the premixed cement slurry is added to aggregates to produce concrete. The rapid and intense hydration of the cement particles is evidenced through tests that show a significant increase in temperature on the outer surface of the turbine mixer.

Accordingly, Applicant respectfully submits that the invention as defined in amended independent Claims 1 and 40 presents a patentable advance in the art and respectfully requests that this rejection be reconsidered and withdrawn.

4. The Office Action has rejected Claims 10, 12 – 15, 45 and 47 under the provisions of 35 U. S. C. §103(a) as being unpatentable over Grun in view of Haws and further in view of U. S. Patent No. 4,691,867 (Iwako). The Office Action states that Iwako adds to the base teachings of Grun and Haws that the Grun disc could be formed with pegs to provide a more consistently worked powder into the slurry mixture. This rejection is respectfully traversed.

Amended independent Claim 10 defines a turbine mixer for use in the production of concrete in which the dry cement and water are added into the mixing chamber through a central opening in the back plate of the mixing chamber, and in which a plurality of agitating fins are mounted in the first chamber to break the cement and water into fine particles, where pegs

are arranged to cooperate with the agitating fins to achieve the desired atomization to attain an intense hydration of the cement before being subsequently added to aggregates to create a concrete mix.

As noted in the preceding sections, neither Grun nor Haws can meet or make obvious the above-identified limitations defining Applicant's turbine mixer for premixing cement and water to create a hydrated cement slurry. While the Iwako reference does teach the use of closely cooperating pegs to affect a mixing of material within a chamber, Iwako adds nothing to the Grun and Haws references to meet the limitations described above in amended independent Claims 10 and 40.

For the reasons given above, Applicant respectfully requests that this rejection be reconsidered and withdrawn.

5. The Office Action has rejected Claims 9, 38, 44, 48 – 51 and 52 under the provisions of 35 U. S. C. §103(a) as being unpatentable over Grun in view of Haws and further in view of U. S. Patent No. 4,436,430 (Mayer). The Office Action has also rejected Claims 8, 16, 39, 43 and 53 under the provisions of 35 U. S. C. §103(a) as being unpatentable over Grun in view of Haws and further in view of U. S. Patent No. 4,822,482 (Hollingsworth). The Office Action states that Mayer adds to the base teachings of Grun and Haws that the rotating plate impeller could have agitating fins at the periphery of the disk plate portion, while Hollingsworth adds a teaching for a discharge opening could be formed with a sliding valve element to control the amount of slurry discharged from the mixing chamber. These rejections are respectfully traversed.

Applicant respectfully submits that Mayer adds nothing to Grun to meet the limitations set forth in the amended independent Claims 1, 10, 33, 40 and 46 defining

Applicant's turbine mixer that is operable to premix dry cement and water at high speed into an intensely hydrated cement slurry to be added subsequently to aggregates to produce a concrete mixture. Similarly, Applicant respectfully submits that Hollingsworth adds nothing to the teachings of Grun and Haws to meet the specific limitations of amended independent Claims 1, 10, 33, 40 and 46.

The rejected claims are dependent on these amended independent claims; however, Applicant would direct the Examiner's attention to various dependent claims that also contain limitations that cannot be met or made obvious by the cited prior art references, whether taken singly or in combination. More particularly, dependent Claims 2, 3 and 7, as well as dependent Claims 14, 37, 41 and 49, define a housing connected to the mixing chamber and having an auger therein to deliver dry cement into the central opening. Furthermore, dependent Claims 7, 14, 47 and 52 define in varying terms that the auger and mixing plate are mounted on the same drive shaft that is rotated at high speeds to affect the atomization of the cement and water particles. Dependent Claims 9, 13, 38, 44 and 51 define radially extending blades positioned in the inner chamber to direct material outwardly toward the annular gap between the mixing plate and the mixing chamber housing to be transferred to the outer chamber. Dependent Claims 6, 12, 35, 42 and 50 specify that the agitating fins are mounted at the periphery of the mixing plate for movement along the annular gap to move material into the annular gap and into the outer chamber. Also, dependent Claim 8, 16, 39, 43 and 53 define in varying terms a positionally adjustable discharge port on the front cover of the mixing chamber to vary the mixing operation of the turbine mixer by selectively positioning the discharge port relative to the agitating fins on the mixing plate. Tests have shown that the position of the discharge port substantially varies the amount of mixing of the cement slurry, and therefore the extent of hydration of the cement particles.

Since the dependent claims provide claims of varying scope to the invention, these dependent claims should be allowed with the independent claims from which they respectively depend. Accordingly, Applicant respectfully submits that the cited Grun/Haws/Mayer and Grun/Haws/Hollingsworth combinations cannot meet or make obvious the invention as defined in independent Claims 1, 10, 33, 40 and 46 and, thus, request that this rejection be reconsidered and withdrawn.

6. In summary, Claims 1, 5, 8 – 10, 12, 14, 16, 33, 37, 40 – 42, 45, 46 and 50 have been amended, Claims 4 and 15 have been canceled, and Claims 1 – 3, 5 – 10, 12 – 14, 16, and 33 – 53 remain in the application. Applicant believes that the claims are allowable based on the foregoing amendments. Applicant respectfully requests that all rejections and objections be reconsidered and withdrawn and that all claims remaining in this case be allowed.

Pursuant to currently recommended Patent Office practice, the Examiner is expressly authorized to call the undersigned attorney if in his judgment disposition of this application could be expedited or if he considers the case ready for final disposition by other than allowance.

Respectfully submitted,

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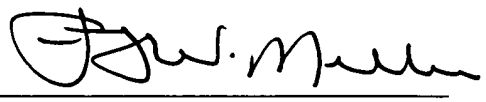

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